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RASMUSSEN MAKES EXTENSIVE COLLECTIONS IN LITTLE-KNOWN ARCTIC

By Knud Rasmussen,
Leader, Danish Arctic Expedition,
Now in Far North.

(This article was written in the Arctic at Lyon Inlet north of Hudson Bay.)

Although much of our work is as yet represented by only the rough entries in our diaries and now lacks the connecting links that will give it finish and importance, as we have made our journeys, which are in themselves accomplishments, we have kept inventories of the collections acquired.

Since the beginning of the expedition in 1921 we have secured over 5800 specimens of an ethnologic, archaeological, zoological, botanical or geological nature and over 600 photographs have been taken.

Two hundred Eskimo legends have been collected and recorded and we have made anthropological measurements of about a hundred Eskimos. A comparative phonetic list of languages of the various Eskimo tribes has been made. On all journeys daily weather observations have been taken. Extensive maps of the territory in the vicinity of Melville Peninsula have been made based on 500 astronomical observations.

Last Studied Century Ago

We have been fortunate in travelling in regions which have formerly been quite or nearly unknown. None of the Eskimos, with whom we have come in contact, have ever been studied according to modern scientific methods. The Igdluliks and the Aiviliks, our nearest neighbors, were, it is true, visited a hundred year ago, and described by Parry and Lyon during their stay in 1821-23. Though we have every reason to entertain the greatest respect for the work done by these bold pioneers, one cannot, however, shut one's eyes to the fact that people at that time were not in possession of the essential presuppositions for the understanding of a primitive people, and the fact that none of the members of this Expedition spoke the Eskimo language would put nearly unsurmountable obstacles in the way of a thorough understanding of the spiritual Eskimo culture. More modern in their conception are, for the matter of that, the works of Franz Boas

from Hudson Bay, but they rest exclusively on second hand observations obtained through the captains of different whalers.

From the very first it was of incalculable value to us, that the dialects out here were so closely related to those of Greenland, that we very quickly became intimate with the people we met. The tribes with which we have had the greatest communication are the Aiviliks, the Igdluliks and the Netjiliks. Of these tribes the Aiviliks have had most contact with the whalers, but one meets also both Igdluliks and Netjiliks in the neighborhood of Chesterfield Inlet.

The Whalers Change Natives

Whalers had a strong influence on the history of the Eskimos. In 1860 the first whalers arrived in these parts, and there seems to have been excellent whaling conditions, for as early as 1864 there were no less than fourteen American vessels up there, and from 1867 also Scotchmen took part in the whaling. The flourishing period of this whaling ground seems to have been as early as about 1870, and since then the number of ships frequenting these waters have gradually dwindled down to very few. The last whaler wintered at Repulse Bay in 1912. From the earliest time it was the common habit of the whalers to engage the Eskimos as the crew of their boats. At the present moment there is hardly any Aivilik who has not been in the service of the whalers, and this is also true of a comparatively large number of the Netjiliks who have immigrated into the district and some few Igdluliks.

Native Canoes Abandoned

Through the training of the whalers, the Eskimos have acquired great skill in handling a boat and as sailors in foul weather and ice-filled waters they are upon the whole absolutely superior to the Greenlanders, but the circumstance that they have learned to handle a whale-boat as well as Scotch or American sailors had, on the other hand, led to the fatal result that the kaiak, the native canoe, has fallen into complete disuse. There is at the present moment not a single kaiak between Fury and Hecla Strait and Chesterfield Inlet. The whaleboat may have its advantages, but on the other hand it requires a crew, which the Eskimos are not able to supply. This is surely one of the reasons why the catching of sea animals does not play the part in the lives of the Eskimos that it might.

For the hunting of whale they all possess skill as well as boldness, but they only do it with modern hunting gear and there are many symptoms that it is an ability which is going to disappear with the men who are trained to it by the white whalers.

In crossing different varieties of tomatoes, to obtain red fruit one parent must be red; to obtain pink tomatoes, one parent must be pink and the other pink or yellow; and to produce yellow fruit both parents must be yellow.

TABOO MAKES ESKIMO SHUN FAT FOXES
AND EAT UNHEALTHFUL PANCAKES

By Knud Rasmussen,
Leader, Danish Arctic Expedition,
Now in Far North.

(This article was written in the Arctic region north of Hudson Bay.)

On a small island in Baker Lake, a lake 60 miles in length, lies one of the trading stations of the Hudson Bay Company, the most advanced outpost of civilization within the vast tundra levels, called Barren Grounds, which lie between the timber line and the Arctic Ocean. This place is frequented by the Eskimos on trading expeditions, which extend over several months, from the mouth of Back River in the neighborhood of the Magnetic Pole as well as from the lakes far south, where the first trees appear. Five different tribes regularly frequent this place in spring time in order to sell their furs, so as to be able to return to their homes before the melting of the snow.

The greater part of the Eskimo families who have been in the interior of the country during the summer time, at a period when the reindeer hunting is good, usually have fairly large meat-depots for use during the first part of the winter. As a rule, however, these depots are used up about Christmas or New Year's and then begins a completely artificial existence which is based upon fox-hunting. Fox furs are sold at \$12.50 to the Hudson Bay Company, and with this money the Eskimos buy flour, baking-powder, tea, sugar and tobacco, which make the principal fare for the greater part of the population until in the spring the catching of seals begins once more. Upon the whole it is a rather miserable existence since the lack of fats in this diet does not qualify it as the only food during an Arctic winter. The wheatmeal is eaten as thick, not always well-baked pancakes, which often rather upset the digestion. The meat of the foxes, which is very savory, in particular when they are fat, as is the case up here, is never eaten because it is taboo.

Clothing Looks Fantastic

The dress of this region is practical but looks rather fantastic, especially as far as the women are concerned. For a complete suit about seven reindeer skins are required. Sealskins are almost exclusively used for kamiks or native boots, but in exceptional cases one sees it used for the fur-jackets and trousers of the men during the summer period. The costume itself for both men and women consists of two layers. There is an inner jacket and inner trousers of light thin-haired skins, with the hair inside. The second layer consists of the outer jacket and the outer trousers of the somewhat longer haired autumn skins. The jackets of the men have an ordinary hood and in front reach only to the thighs, but in the back they have a large, broad flap which reaches below the knees and frequently to the ankles. They are bordered with fringes and ornamented with inset white skins. The trousers are short, hanging loosely over the knee, where they are likewise bordered with white skins. The foot-wear consists of a long boot with the hair inside; over that a short skin-sock which is laced tightly across the instep. The hair on these are turned inside, but there is an extra sole with the hairs outside, preferably made of the skin of the

reindeer's head, the hairs of which do not wear off easily. This skin-shoe is replaced by the ordinary outer kamik of unhaired sealskin with soles of bearded seal when the Eskimos go hunting on the wet new-ice, for foot gear which is made exclusively of reindeer skin can be used only when it is absolutely dry. As a rule, every man has two suits of clothes. The spring or autumn suit is also used for indoor wear while a thicker-haired outfit is used for travelling during the winter.

Women Wear Trousers

Women's apparel in principle is the same as that of the men and consists of the same number of layers. But it is quite different of appearance. The most striking feature is a huge hood which when it is thrown back reaches below the waist. It has flaps both in front and behind, being shorter in the front where, however, it reaches as far as the knees. The back flap very nearly reaches the ground. Like the fur-jacket of the man, that of the women is bordered with thin, fine fringes, and it is also ornamented with many inset white skins. The trousers of the women are of very nearly the same shape as those of the men, only there are white stripes running down both sides. These costumes are not only extremely picturesque but in spite of their grotesque shape they make an extremely pretty effect because of the carefully chosen skins and the extremely neat workmanship. The women up here are skilled with the needle.

Sorcerer Turns Mechanician

Unfortunately all such picturesque rigs disappear with the coming of the summer for then the women dress in dirty cotton frocks and the men in discarded police uniforms and old sailors' clothes. The summer is generally a period of entire transformation. Everything that is of a distinct Eskimo character disappears and it is difficult to imagine that the excellent builders of snow-huts or patient hunters from the scarce breathing-holes on the ice are the same as the men who now appear among the crews of whalers ^{as} or sailors on board the schooners of the Hudson Bay Company. The wizard songs from the cold snow-huts are, in the tents, superseded by harshly grating phonographs, and upon the whole it seems as if one is confronted with quite different beings. But my surprise at the unexpected culminated when I met an angakoq (an Eskimo sorcerer) as the owner of a motor-boat and himself an able mechanician.

This change to civilization occurs about the end of May at the very moment that they move into their tents.

Dr. Edwin E. Slosson

CHATS ON SCIENCE

HOME-MADE RUBBER

It is to be hoped that part of the half million dollars that Congress has recently appropriated for developing a domestic rubber supply will be devoted to investigating the possibilities of home-made, as well as of home-grown, rubber. It is all right to start rubber plantations in the Philippines. If we had done that ten years ago we should not now be at the mercy of the British

rubber-growers. Let us also milk the milkweed if it can be induced to give down. But let us further give the chemist a chance to see what he can do in the way of competing with the agriculturist. He has beat him on madder and indigo. Perhaps he can do it on caout-chouc.

We know that rubber can be made in the laboratory. At the International Congress of Applied Chemistry held in New York shortly before the war the German chemist, Duisberg, proudly exhibited in the Great Hall of the College of the City of New York a pair of tires that had been made from synthetic rubber and had run an automobile a thousand miles or more. The British chemist, Sir William Perkin, promptly countered with a different process for making artificial rubber. Neither process has so far proved a commercial success but the chemists have not given up the problem.

Last year Plotnikoff announced in a German periodical that caout-chouc chloride could be readily made by the action of ultra-violet rays on vinyl chloride. Now the caout-chouc chloride can be easily converted into ordinary rubber and vinyl chloride can be made from acetylene which, as every automobilist knows or used to know, can be made by dropping calcium carbide into water, and calcium carbide can be made from coal and lime by the electrical furnace and the electrical power can be got from waterfalls.

But where can we get the ultra-violet rays? There are plenty in the sunshine but they are pretty well filtered out by the atmosphere before it gets to us, luckily, for otherwise we would get worse sunburned than we do. The mercury-vapor lamp, such as makes us look like corpses when we are having our photographs taken, gives off ultra-violet but that is too expensive.

Now the ultra-violet rays differ from the rays that we can see only in having shorter wave lengths. Sometimes we see a tall man walking with his short wife, both at the same gait but she taking two steps to his one. So all kinds of light travel with the same speed in empty space but the violet takes two steps to the red's one, and the rays beyond, that is the ultra-violet, step faster still.

But a polite man will shorten his pace to accommodate the lady he is walking with, even if she is his wife. Cannot light of long wave length be induced somehow to shorten its wave? In other words, cannot ordinary sunshine be converted into ultra-violet light, or at any rate be made to act the same? It can in various ways, and Plotnikoff has shown that if a salt of uranium is added sunlight will serve as well as ultra-violet in effecting the transformation to rubber.

There is nothing absurd about making rubber with sunlight. All the rubber we use is made that way. And if a tree can use sunshine for that purpose why cannot the chemist? We have plenty of sunshine, more than most countries and more than we want in summer. If there can be devised satisfactory step-up transformers to change sunshine into ultra-violet rays we might make not only rubber but a host of other things for which we now depend on plants, and we could use this energetic agent for speeding up numerous chemical manufactures. Dr. S. E. Sheppard in the February issue of the Chemical Age suggests that we might in time beat the plants in the making of various oils, resins, gums,

sugars, dyes and drugs. The American Association for the Advancement of Science foreseeing the immense future importance of knowing how to utilize the constructive power of light, has appointed a special committee on photosynthesis.

READING REFERENCE - Geer, William C. The Reign of Rubber. New York, The Century Company, 1922.

OIL FOUND IN SOUTHERN VIRGINIA

A recently discovered oil deposit is creating much interest at the U. S. Geological Survey. Oil has been struck in small quantity in the toe of southwestern Virginia, not far from the Kentucky border. Investigations to determine if the oil is present in commercial quantity are now being carried on.

The strike is about two miles east southeast of Rose Hill, Lee county, and is some hundreds of miles south of the wells of the West Virginia field. Its geological interest is in the fact that it is in the Appalachian valley where the presence of oil has been doubted by geologists, and because it is present in a geological formation - the Clinton - which is entirely overlaid by the Knox dolomite, a formation that normally lies 5,000 to 6,000 feet below the Clinton.

Oil seepage has been known in this region for several years and an experimental well was recently drilled to a depth of about 300 feet. A fair amount of oil was discovered which upon analysis was found to resemble that of the western Pennsylvania field in composition. Salt water which was found immediately under the oil has flooded the well so that the oil flow has ceased.

Drilling of another well, 2,000 feet deep, is soon to be begun near the site of the first drilling. This may determine the commercial possibilities of the new pocket. Isolated pockets of oil are known to exist in other parts of the country where oil in paying quantities is not found and it is possible that this new find may be merely another example of such sporadic occurrence. On the other hand, it is also possible that the recent discovery may be the first indication of a new and extensive oil field in a region where no oil was supposed to exist.

READING REFERENCE - Talbot, Fredrick A. The Oil Conquest of the World. Philadelphia. J. B. Lippincott Company, 1914.

The annual report of the Royal Canadian Mounted Police shows an epidemic of murder among the Eskimos of the Arctic circle, a people noted for their kindness and docility.

ENGLISH SCIENTISTS TO STUDY SOUTH SEA

A large and well-equipped expedition for the study of the South Pacific islands is being organized by the Scientific Expeditionary Research Association and will set out sometime in September to be gone ten months. Many specialists in scientific fields will be among the party which will travel in its own vessel, a three masted schooner with auxiliary steam power.

The trip will be made via the Panama Canal and will include stops in the Atlantic at Teneriffe on the outward, and the Azores on the homeward voyage. In the Pacific stops will be made at the Galapagos Islands, Easter Island with its mysterious stone statues, Pitcairn Island where live the descendants of the mutineers of the "Bounty", Manga Reva, Rapa, Tahiti, and the groups of the Cook Islands, the Austral Islands, and the Marquesas.

The itinerary provides for 136 days ashore to be spent by the scientists in pursuit of their favorite studies. A report on the voyage will be made as soon as the scientific material can be assembled.

PUBLIC CAN USE NEW WATER RESISTING GLUE

Free use by the public of a new water-resisting glue developed at the United States Forest Products Laboratory, Madison, Wis., has been guaranteed by the United States Patent Office. Any person may obtain the formula by applying to the government for it.

No concern can patent and secure exclusive rights to the glue, which is a perfection of the casein-silicate glue developed during the war, Forest Service officials said. An improvement consisting of the addition of certain copper salts to the old formula give it better strength, water resistance, and working properties.

The formula was given to a number of woodworking factories which were using it until they were stopped by threats of suit for infringement by an applicant for a private patent covering the same formula discovered by the government chemists. Upon consideration of the evidence as to priority, however, the U. S. Patent Office granted the patent to the Forest Products Laboratory for dedication to the people of the United States for their free use.

METEORS SAME AS EARTH MATERIALS

Meteors have always been looked on with interest by the sky watchers. They swoop down on us startlingly from some mysterious hinterland of outer space. We look with something of awe, even today, and wonder about them. Are they messengers from distant, strange worlds? Are they special? Do they differ in some essential way from the substance matter of the earth? The answer is an unromantic no.

Chemically, meteorites are often composed of iron with some nickel, and smaller amounts of other elements. So far as the chemist can determine, the iron in meteorites is just like the iron in the kitchen range or the garden hoe, and the nickel no different from that in the five-cent piece in your pocket. It seems to be pretty definite proof that our earth is part and parcel with the rest of the universe, and that all the splendid stars are now or will sometime be made up of just the kinds of chemical elements we find by scratching the surface of this little old earth.

The subject has recently taken on new interest for the scientist because of the discovery a few years ago of what are called isotopes. Many elements are not single substances, but are made up of mixtures of single substances, the isotopes, which are so alike chemically that they cannot be separated by ordinary means. They stay together in all chemical processes, and only by laborious experiments with X-rays and radium substances has the scientist become convinced that they exist. Chlorine, one of the elements in common salt, has an atomic weight of 35.47, but it is now known to be made up of three isotopes of atomic weight ranging from 35 to 39, in the proportion to give just the odd weight found. So the question arose as to whether the iron and the nickel in meteors were made up of the same proportions of isotopes as are found in our terrestrial elements.

Prof. G. P. Baxter, working in one of the Harvard Laboratories, has completed atomic weight determinations for both iron and nickel from a meteorite, and finds that in this way also the elements of the meteorite resemble those belonging to our earth.

There seems to be no doubt, therefore, that all of the matter of the universe came out of the same vast melting pot. Our sun differs from giant Betelgeuse, at the other end of the heavens, only in size and hotness. The warmth and the water and the light on our earth are probably very much like those on thousands of planets swinging in the vast spaces of the Milky Way; and, given these same conditions, it is more than likely that life is there also, and intelligence, perhaps thinking and wondering about us as we think and wonder about it.

MEASLES DEATH RATE HIGHEST IN MANY YEARS

Deaths from measles were twice as numerous during the first half of this year than during the corresponding period for 1922, according to a report by Dr. Louis I. Dublin, statistician of the Metropolitan Life Insurance Company.

"In a general health situation that is becoming better with each month of 1923," he said, "there appears at present to be but one unsatisfactory item, the high measles death rate."

"The period of highest mortality from this disease is always the winter and spring seasons; and a sufficient number of deaths was recorded among Metropolitan Industrial policyholders during these months of 1923 to show conclusively that this year's measles death rate will be the highest in many years. This is not due to an outbreak in any particular section of the country but to widespread prevalence of the disease in almost all of the states."

While students of public health recognize the fact that measles ranks first as a cause of death among the acute fevers of children, this fact is not so well known among the public at large, he explained. As a disease it does not inspire as much fear as scarlet fever. But it is, nevertheless, a fact that in five of the eleven years of the period 1912 to 1922 the death rate for measles among Metropolitan Industrial policyholders exceeded that for scarlet fever.

READING REFERENCES - Keen, William Williams. Medical Research and Human Welfare. Boston, Houghton Mifflin Company, 1917. Libby, Walter. The History of Medicine in Its Salient Features, Boston and New York, Houghton Mifflin Company, 1922.

OUTBREAKS OF SMALLPOX DUE TO ANTI-VACCINATIONISTS

Anti-vaccinationists are responsible for the sacrifice of vast numbers of human lives, Dr. Victor Heiser of the Rockefeller Foundation declared in a discussion in the section of preventive medicine of the American Medical Association at its annual meeting in San Francisco.

"Recent outbreaks of smallpox in Colorado and elsewhere in the United States which have resulted in the death of hundreds, disfigurement of thousands, and great economic loss, are a reflection on our civilization," said Dr. Heiser. "They might have been avoided by proper vaccination. The loss of 50,000 lives in the Philippine Islands is too big a price to pay for the privilege of remaining unvaccinated.

"The vast experience of the last few years again conclusively demonstrates that vaccination against smallpox is harmless and is effective in controlling outbreaks of the disease. It is the duty of the medical profession to inform the public that the activities of those opposed to vaccination are responsible for the loss of many lives."

The use of such terms as "alastrim" or "amaas" to designate mild types of smallpox was deprecated by Drs. J. P. Leake of the U. S. Public Health Service, and J. M. Force of the University of California, and others in continuing the discussion emphasized that while there are other factors tending to limit the spread of smallpox the only method which can be definitely relied on is vaccination.

The importance of fatigue in causing tuberculosis was insisted on by Dr. H. A. Pattison of New York in a discussion of that disease. He urged that special investigations be made of the relation of fatigue to the ability of the human body to combat bacterial infection.

"Fatigue," he said, "is brought about not only by physical effort but also by study, social activities and temperamental exhaustion. It is this important relationship of fatigue to the disease that makes rest such an important factor in its treatment and control."

TABLOID BOOK REVIEWS

INCOME IN THE UNITED STATES, ITS AMOUNT AND DISTRIBUTION, 1909-1919.

By the Staff of the National Bureau of Economic Research, Inc. Harcourt, Brace and Co. p. 152.

As the first volume of a series of reports on economic conditions to be made by the Bureau of Economic Research, this is a brief statistical study of the size and distribution of the national income, approximately equal space being given to each phase. The total income is estimated by sources of income and by incomes received. The distribution is analyzed as to the relative amount received by employees, that received by "management and property", and the apportionment between incomes ranging from less than \$1,000 to more than \$1,000,000.

PHARMACEUTICAL AND FOOD ANALYSIS, A Manual of Standard Methods for the Analysis of Oils, Fats, and Waxes and Substances in Which They Exist; Together with Allied Products. By Azor Thurston, Late Chemist to the Ohio State Pure Food and Drug Commission. D. Van Nostrand Company, New York.

A handbook and laboratory manual for the food and drug chemist, specializing on the methods of analysis of edible and medicinal oils, fats and waxes. There are chapters on the analysis of meats, eggs and dairy products. Particular attention is paid to the standards set by State and Federal authority and to the detection of adulterants in foods.

THE PROPERTIES OF ELECTRICALLY CONDUCTING SYSTEMS, by Charles A. Kraus. Chemical Catalog Co., N. Y., 1923.

One of the chemical monographs now being published by the American Chemical Society. An encyclopedic compilation of the phenomena of conduction in metals, pure solutions, and other media, with a discussion and criticism of past and present theories on the subject. It is a book for the trained student rather than for the general reader.

THE ORIGIN OF SPECTRA, by Paul D. Foote and F. L. Mohler. Chemical Catalog Co., New York.

This American Chemical Society Monograph is intended chiefly for the trained student and the discussions are largely in mathematical form. Much space is given to the quantum theory. The whole book is illustrated with many plates and diagrams.

Static electricity which collects in certain parts of the machinery as a result of friction causes a great many damaging fires in cotton gins.
